

Serial No. 10/077,775
December 29, 2003
Reply to the Office Action dated October 6, 2003
Page 2 of 9

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claim 1 (previously presented): A surface acoustic wave device comprising:
a package having a linear thermal expansion coefficient;
a plurality of metal bumps; and
a piezoelectric substrate bonded to the package via the plurality of metal bumps;
wherein the piezoelectric substrate has different linear thermal expansion coefficients in two different directions of a bonding surface of the piezoelectric substrate on which the plurality of metal bumps are provided; and

the maximum distance between the metal bumps arranged in a direction in which the piezoelectric substrate and the package have a greater difference between the linear thermal expansion coefficients is less than the maximum distance between the metal bumps arranged in another direction in which the piezoelectric substrate and the package have a smaller difference between the linear thermal expansion coefficients.

Claim 2 (original): A surface acoustic wave device according to Claim 1, wherein at least three of the metal bumps are disposed near any of four corners of the bonding surface of the piezoelectric substrate.

Claim 3 (original): A surface acoustic wave device according to Claim 1, wherein the piezoelectric substrate is made of one of lithium tantalate and lithium niobate as a main component, and the package is made of alumina ceramic as a main component.

Claim 4 (original): A surface acoustic wave device according to Claim 1, wherein one of the metal bumps is disposed near each of four corners of the bonding surface of the piezoelectric substrate.

Serial No. 10/077,775
December 29, 2003
Reply to the Office Action dated October 6, 2003
Page 3 of 9

Claim 5 (original): A surface acoustic wave device according to Claim 1, wherein at least three of the metal bumps are disposed near any of four corners of the bonding surface of the piezoelectric substrate, and at least one of the metal bumps is disposed in the approximate center of the bonding surface of the piezoelectric substrate.

Claim 6 (original): A surface acoustic wave device according to Claim 1, wherein the piezoelectric substrate is substantially rectangular.

Claim 7 (original): A surface acoustic wave device according to Claim 1, wherein the metal bumps are made of Au.

Claim 8 (original): A surface acoustic wave device according to Claim 1, wherein the metal bumps are made of solder.

Claim 9 (original): A surface acoustic wave device according to Claim 1, wherein the metal bumps are made of a metal containing Au.

Claim 10 (original): A communication apparatus comprising a surface acoustic wave device according to Claim 1.

Claim 11 (previous presented): A surface acoustic wave device comprising:
a package having a linear thermal expansion coefficient;
a plurality of metal bumps; and
a piezoelectric substrate bonded to the package via the plurality of metal bumps;
wherein the piezoelectric substrate has a substantially rectangular bonding surface on which the metal bumps are provided and has different linear thermal expansion coefficients along the directions of two sides of the bonding surface; and

Serial No. 10/077,775
December 29, 2003
Reply to the Office Action dated October 6, 2003
Page 4 of 9

the maximum distance between the metal bumps disposed in a direction in which the piezoelectric substrate and the package have a greater difference between the linear thermal expansion coefficients is less than the maximum distance between the metal bumps arranged in another direction in which the piezoelectric substrate and the package have a smaller difference between the linear thermal expansion coefficients.

Claim 12 (original): A surface acoustic wave device according to Claim 11, wherein at least three of the metal bumps are disposed near any of four corners of the bonding surface of the piezoelectric substrate.

Claim 13 (original): A surface acoustic wave device according to Claim 11, wherein the piezoelectric substrate is made of one of lithium tantalate and lithium niobate as a main component, and the package is made of alumina ceramic as a main component.

Claim 14 (original): A surface acoustic wave device according to Claim 11, wherein one of the metal bumps is disposed near each of four corners of the bonding surface of the piezoelectric substrate.

Claim 15 (original): A surface acoustic wave device according to Claim 11, wherein at least three of the metal bumps are disposed near any of four corners of the bonding surface of the piezoelectric substrate, and at least one of the metal bumps is disposed in the approximate center of the bonding surface of the piezoelectric substrate.

Claim 16 (original): A surface acoustic wave device according to Claim 11, wherein the metal bumps are made of Au.

Serial No. 10/077,775
December 29, 2003
Reply to the Office Action dated October 6, 2003
Page 5 of 9

Claim 17 (original): A surface acoustic wave device according to Claim 11, wherein the metal bumps are made of solder.

Claim 18 (original): A surface acoustic wave device according to Claim 11, wherein the metal bumps are made of a metal containing Au.

Claim 19 (original): A communication apparatus comprising a surface acoustic wave device according to Claim 11.